By the present amendment claims 8, 9, 15, 19 and 23 are cancelled without prejudice or disclaimer, claims 24 – 28 are added, and claims 1-7, 10-14,16-18, 20 – 22, and 24-28 are pending. Reconsideration of these claims is requested.

Claim 1 recites a computer implemented method that consolidates data organized into records and items where each record has a value for each item, into a plurality of groups. Based on the plurality of groups, a predicted vote for a particular record and a particular item is determined by using a similarity scoring approach that reflects likelihood similarity between one group of the plurality of groups and the particular record. The method also outputs the predicted vote for the particular record and the particular item.

The process uses a similarity scoring approach of attributes between a record and the attributes of a group model to assign or choose a group for purposes of a prediction. Turning to the paper to Breese et al., (Empirical Analysis of Predictive Algorithms for Collaborative Filtering) this paper contains no teaching for a process of assigning a record (which can contain the spending habits of a user, for example) to a particular cluster, group or descriptor based subgroup within a database.

In section 2.3 of the Breese et al paper, Cluster models are discussed. In the evaluation criteria portion (Section 3.1) of the paper, Breeze et al note "The data for the training set is used as the collaborative filtering database or to build a probabilistic model. We then cycle through the users in the test set, treating each user as the active user. We divide the votes for each test user into a set of votes that we treat as observed, I_a, and a set that we will attempt to predict, P_a. We use the votes in I_a to predict the votes in P_a as shown in Equations 1 and 4." The paper then discusses individual scoring based on a deviation of the predicted vote to the actual vote on items the users in the test set have actually voted on. Nowhere, however does Breese et al show how to use the cluster model to correlate a data record to one of the clusters.

When discussing clustering Breese et al merely states, that "It is straightforward to calculate the needed probability expressions for Equation 4 within this framework." (See section 2.31 beneath the equation for Pr(C ...etc)) But the paper says nothing regarding *how* to determine the most likely value of C (what cluster the user belongs to or how the user is "distributed" among different clusters, given attributes about a particular user/person (v_1, v_2, ..., v_n). Claim one features a method of computing the likelihood that a given individual (record)

belongs to a group. The method featured in claim 1 recites a use of predictions that are made based on a similarity with a record and a group. Since the Breese et al reference is missing a feature of claim 1 that is not shown in the secondary reference to Callaghan (US 5,937,397), claim 1 is allowable.

Claims 2 – 7 and new claim 24 depend from allowable claim 1 and are also allowable. Claim 24 features the method of claim 1 wherein the particular record is contained within the records that are organized into groups. A probability that a given group contains the particular record is used to reflect likelihood similarity used to make predicted votes for the particular record. Support for this feature is found at page 12, line 20 of the application as filed. This feature is neither shown nor suggested in Breeze et al since there is no teaching on how to assign a record to a given group for the purpose of making predictions.

Claim 10 features a machine readable medium claim based on claim 1 and all the arguments presented above with regard to claim 1 are appropriate for this claim. This claim is accordingly allowable. Claims 11 – 14 and new claim 25 depend from allowable claim 10 and are also allowable.

Claim 16 recites a computer-implemented method operable on data organized into records and items. Each record has a value for each item. The data is consolidated into a plurality of clusters. Based on the plurality of clusters, a predicted vote is determined for a particular record and a particular item using a likelihood similarity scoring approach or a correlation similarity scoring approach between the particular record and at least one of the plurality of clusters. The predicted vote for the particular record and the particular item is then output from the computer. This claim features the recitation of clusters rather than groups. It is neither shown nor suggested either alone by the Breese et al reference or by the Breese et al reference in combination with the '397 patent to Callaghan. Claim 16 and dependent claims 17, 18 and 26 are allowable.
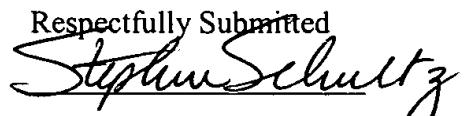
Claim 20 features a computer-implemented method operable on data organized into records and items, so that each record has a value for each item. The data also consolidated into a plurality of clusters. Based on the plurality of descriptors, a predicted vote for a particular record and a particular item is determined using a correlation similarity scoring approach that finds a similarity between the particular record and one of the plurality of clusters. The predicted vote for the particular record and the particular item is provided as an output. These features are

neither shown nor suggested by Breese et al either alone or in combination with Callaghan. Claim 20 and dependent claims 21, 22, and 27 are allowable.

Claim 28 is modeled after allowable claim 1. Claim 28 recites, however, that a similarity scoring approach featured in the claim reflects correlation similarity between at least one group of the plurality of groups and a particular record. This claim is neither shown nor suggested by the Breese et al reference either alone or in combination and therefore this claim is allowable.

All claims pending in this application are in condition for allowance and a prompt notification of allowance is solicited.

Respectfully Submitted

Stephen J. Schultz, Reg No. 29,108

4/11/03

Encls

Addendum shown changes with bracketing and underlining

Addendum shown changes with bracketing and underlining

<u>In the claims</u>:

1. (Amended) A computer-implemented method comprising:

consolidating data organized into records and items, such that each record has a value for each item, into a plurality of groups;

based on the plurality of groups, determining a predicted vote for a particular record and a particular item using a similarity scoring approach <u>that reflects likelihood similarity between at least one group of the plurality of groups and the particular record</u>; and,

outputting the predicted vote for the particular record and the particular item.

Please cancel claims 8 and 9 without prejudice or disclaimer.

10. (Amended) A machine-readable medium having instructions stored thereon for execution by a processor to perform a method comprising:

consolidating data organized into records and items, such that each record has a value for each item, into a plurality of groups; and,

based on the plurality of groups, determining a predicted vote for a particular record and a particular item using a <u>likelihood</u> similarity scoring approach <u>or a correlation similarity scoring approach between the particular record and at least one group of the plurality of groups</u>.

Please cancel claim 15 without prejudice or disclaimer

16. (Amended) A computer-implemented method operable on data organized into records and items, such each record has a value for each item, the data also consolidated into a plurality of clusters, the method comprising:

based on the plurality of clusters, determining a predicted vote for a particular record and a particular item using a <u>likelihood</u> similarity scoring approach <u>or a correlation similarity scoring approach between the particular record and at least one of the plurality of clusters</u>; and,

outputting the predicted vote for the particular record and the particular item.

Please cancel claim 19 without prejudice or disclaimer.

20. (Amended)   A computer-implemented method operable on data organized into records and items, such each record has a value for each item, the data also consolidated into a plurality of clusters, the method comprising:

based on the plurality of descriptors, determining a predicted vote for a particular record and a particular item using a <u>correlation</u> similarity scoring approach <u>that finds a similarity between the particular record and one of the plurality of clusters</u>; and,

outputting the predicted vote for the particular record and the particular item.

Please cancel claim 23 without prejudice or disclaimer